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File Code: 3420 **Date:** August 18, 2005
Route To:

Subject: Douglas-fir Tussock Moth Activity in the Sandia Mts.

To: Jackie Andrew, District Ranger, Sandia RD, Cibola NF

Dear Jackie:

We have received inquiries lately about Douglas-fir tussock moth activity in the Sandias and thought an update on our monitoring activities would be of interest to you.

In the time since Terry Rogers and Dan Ryerson discussed the outbreak with you on June 21, we have been able to summarize the results of our latest aerial detection survey which was conducted July 22. During that flight, our aerial observer mapped 870 acres of new defoliation on the west face of the Sandias—a considerable expansion of the outbreak area since last summer. The 2004-2005 cumulative affected area mapped now encompasses about 940 acres. Because only heavy defoliation is visible from the air, we expect significant mortality to occur in the mapped areas; many of the trees which were heavily defoliated last year have since died. We assume tussock moth activity of lesser intensity is occurring in addition to that which was visible from the air.

Repeat ground visits to the Pino Trail (Terry Rogers and Dan Ryerson on June 8 and July 26; Dan Ryerson on August 2) have showed high caterpillar densities and evidence of disease in the population. Recently collected tussock moth larvae and pupae have yielded at least three species of parasitic wasps, some in significant quantity. Whether sufficient disease and natural enemy pressure will result in a population collapse on the west side remains to be seen, but we are encouraged by the evidence thus far. An additional area of suspected tussock moth defoliation has been observed on the east side of the Sandias, south of the Cienega Trail. On August 10, Terry Rogers confirmed the presence of tussock moth cocoons and adults in the mixed conifer at the Tree Springs Trailhead, Balsam Glade and Capulin Picnic Areas, and at the Las Huertas turn-off. This infestation appears to be less advanced than the one on the west side and may be poised to expand. Although there was no conspicuous tussock moth defoliation in the vicinity of our monitoring plots this year, the average numbers of male moths trapped at these sites ranged from 33 to 47 per trap. This is a considerable increase over last year's trap catches (see attached letter). An average trap catch of 17-25 moths is considered predictive of a potential outbreak in the following 1 to 3 years. Levels averaging greater than 40 moths per trap suggest more intensive ground sampling of other life stages may be in order, particularly where defoliation could compromise management objectives.

Dead tussock moth caterpillars exhibiting inverted hanging posture characteristic of diseased specimens, Pino Trail, Sandia RD, August 2, 2005.

In 1979, a formulation of a naturally-occurring tussock moth nucleopolyhedrosis virus (registered with the EPA in 1976 under the trade name TM Biocontrol-1®) was applied in the Bear Canyon area of the western face of the Sandias. The application successfully controlled the tussock moth population, but subsequent sampling never confirmed permanent establishment of the virus. Recently collected larval cadavers have been sent away for analysis to determine if the virus or another naturally-occurring pathogen is active in the population. Because the analysis will be done in Canada, results will not be known for several months. However, regardless of the pathogen involved, the characteristic appearance of the dead caterpillars indicates a disease is at work in the population (photo at left).

From a resource management perspective, there are several options you might consider. The western side outbreak is well-advanced and may be poised to collapse, given the presence of disease and parasites. We are estimating this to be perhaps the third year in an outbreak cycle which often lasts only three years. We suggest planning trail inspection activities within the next 6 months to assure that trees killed by the tussock moth defoliation are not posing an unacceptable risk to visitors. We understand that because most of the affected area is in designated Wilderness, the standards for hazard tree mitigation are different than in developed sites. However, we also realize some of these trails are heavily used due to their accessibility to the residents of Albuquerque.

The situation on the east side is somewhat different, where populations appear to be less-advanced and developed recreation sites are potentially at risk to defoliating levels of caterpillars. One possible option would be aerial application of the tussock moth virus, but such a decision would have to be made soon since an EIS would be required, necessitating a Notice of Intent to be published in the Federal Register. Because of the protracted timeline for meeting all NEPA requirements, a decision to take this action would need to be made soon to accommodate an early June project. Lack of foliage protection in the application year (the caterpillars don't succumb until most of their feeding has been completed) and availability of virus stock are other considerations for this option. A ground application of carbaryl to highly valued trees within developed sites could also be considered, and would have a narrower analysis requirement.

Before these alternatives could be fully considered, a tussock moth biological evaluation focusing on management objectives would be necessary. Terry Rogers is prepared to conduct such an evaluation if requested to do so by you. Please contact him directly here in Albuquerque at 842-3286 if you wish to take this next step.

We are enclosing a revision of the interpretive poster that we initially prepared for you last spring. The new version shows the expanded area of tussock moth defoliation on the western face of the Sandias. If there are other interpretive efforts with which we can assist, please don't hesitate to ask.

/s/ Debra Allen-Reid
DEBRA ALLEN-REID
New Mexico Zone Leader, Forest Health

Enclosures: 2004 trapping results; revised tussock moth poster

cc:
Alan Kelso
Leonard Lucero
Douglas L Parker
Terry J Rogers
Daniel E Ryerson
John Anhold